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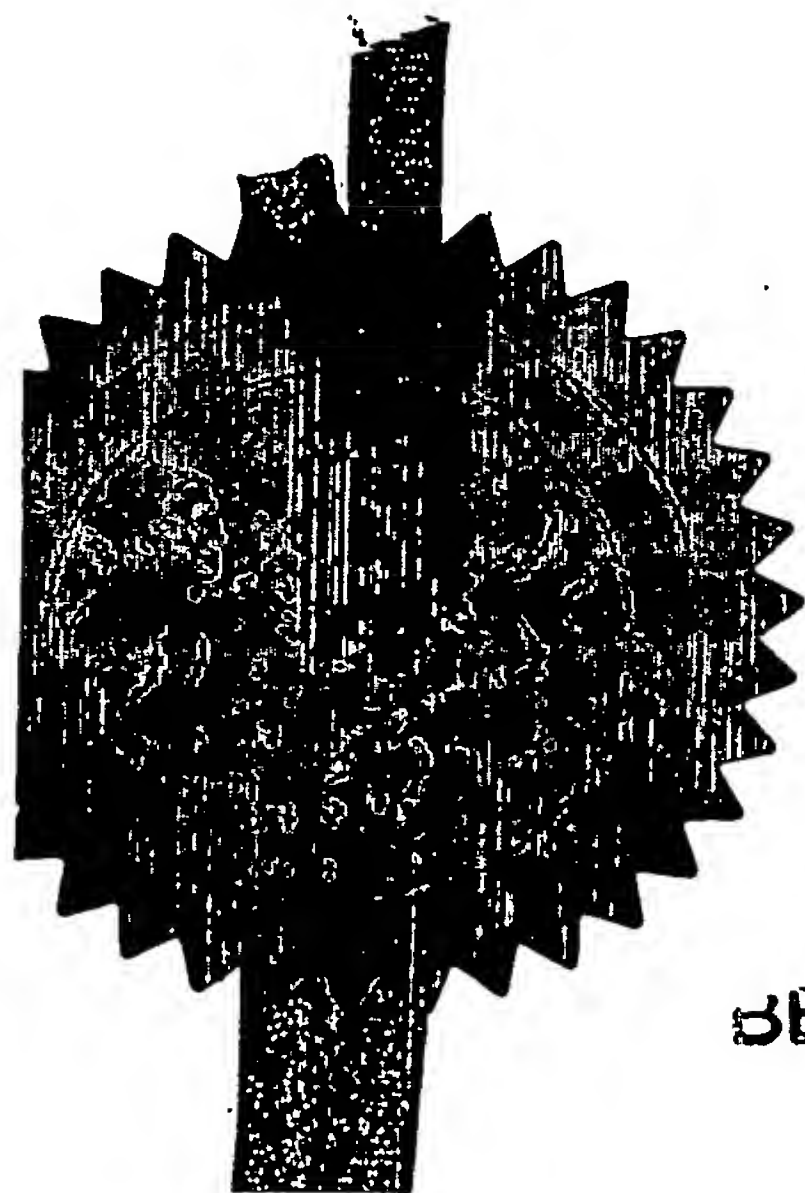
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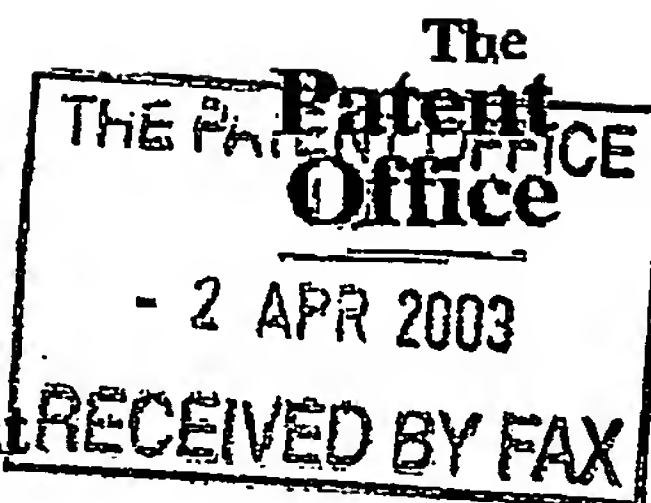
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02APR03 E797243-1 D02824
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1. Your Reference

P.6830.GBA

2. Patent application number

(The Patent Office will fill in this part)

0307622.1

3. Full name, address and postcode of the or of each applicant (underline all surnames)

NEW TRANSDUCERS LIMITED
37 IXWORTH PLACE
LONDON
SW3 3QH

Patents ADP number (if you know it)

7283476003

If the applicant is a corporate body, give the country/state of its incorporation

G.B.

4. Title of the invention

COMMUNICATION SYSTEM AND CONVERTER
FOR USE THEREIN

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

MAGUIRE BOSS
5 Crown Street
St. Ives
Cambridgeshire
PE27 5EB

Patents ADP number (if you know it)

07188725001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

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7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day/month/year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

YES

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
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Description	5 ✓
Claims(s)	2 ✓
Abstract	✓
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Statement of inventorship and right to grant of a patent (Patents Form 7/77)

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11.

I/We request the grant of a patent on the basis of this application.

Signature

Maguire Boss

Date 02/04/2003

MAGUIRE BOSS

12. Name and daytime telephone number of person to contact in the United Kingdom

IAN HARTWELL

Tel: 01480 301588

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DUPLICATE

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5 TITLE: COMMUNICATION SYSTEM AND CONVERTER FOR USE THEREIN

10 DESCRIPTION

15 Technical Field

The present invention relates to communication between equipment, particularly electronic equipment, using the technique of reflective signalling.

20 Background to the Invention

The reflective signalling method of communicating between two or more pieces of equipment is described in detail in WO99/35780 (incorporated herein by reference). At its most basic level, the method involves the steps of
25 (a) transmitting a signal from a first equipment to a second equipment; (b) reflecting said signal back to said first equipment in a manner corresponding to a first bit sequence; (c) receiving the signal thus reflected at said

first equipment; and (d) comparing said signal thus reflected with said transmitted signal to thereby extract said first bit sequence. By using the signal reflection, a reduction in circuitry, complexity and energy consumption is possible relative to existing communication standards.

In a preferred electronic embodiment, reflection of the signal in a manner according to a first bit sequence is achieved by modulating the impedance at the end of a transmission line connecting the equipment

10 In one particular arrangement, an infrastructure of transmission lines is used to communicate between a master node and a slave node, a router allowing the master to communicate with multiple slave nodes. In accordance with the principles outlined above, the slave node reflects the
15 incident data back to the master, modulating the sense of the data by controlling the impedance at the end of the transmission line. The implementation of the slave node has the potential to offer a significant saving over the traditional implementation which requires a full
20 transmitter system to return data to the master.

The present invention has as an objective the implementation of this new technology with existing equipment in a simple and convenient fashion.

25 Disclosure of the Invention

In one aspect, the invention provides a communication system comprising: first and second pieces of equipment having respective housings; a data transmission line for

transmitting data between said pieces of equipment in a reflective signalling format; and conversion means connected to said data transmission line externally of said respective housings for converting data between a reflective signalling format and another format suitable for processing by one of said pieces of equipment.

The conversion means located externally of the respective housings of the equipment enables that equipment to be converted to reflective signalling operation without interfering with the internal structure of the equipment itself.

In another aspect, the invention provides a converter for converting data between a reflective signalling format and another format, said data being transferred between first and second pieces of equipment; wherein the converter is adapted to be located externally of said first and second pieces of equipment.

Again, a converter adapted to be located externally of the pieces of equipment to be connected, e.g. by provision of suitable electrical connectors for connection to the pieces of equipment and/or a suitable protective housing, allows that equipment to reap the benefits of communication using reflective signalling principles without incorporating reflective signalling technology into the equipment itself.

In both aspects of the invention, the converter advantageously includes a signal connector for connection to one of the pieces of equipment and which may be

releasable. Alternatively, the connector may form part of a connector assembly in which the converter is included. Where this connector assembly includes a housing, the converter may be located inside that housing, yielding a connector having no significant apparent increase in size over conventional connectors.

A further advantage of the reflective signalling concept described in the aforementioned WO99/35780 is the facility to transfer power as well as data along the same transmission line. An advantageous embodiment of the invention therefore envisages a converter that not only converts data but also power from one format to another.

Description of Figure

Figure 1 is a block diagram of a communication system in accordance with the present invention.

Best Mode of the Invention

With reference to figure 1, a communication system 1 comprises first and second electronic devices 2,3 having respective housings 5,6 and, between the two, a converter 4 having a housing 7. Converter 4 and first device 2 are connected for reflective signalling via a transmission line 8 having two conductors 9,10 that may, for example, be arranged co-axially. Data received by converter 4 in reflective signalling format is fed to integrated circuit 13 which converts it to a conventional serial bitstream in the manner detailed in the aforementioned WO99/35780, an

additional conversion module 12 allowing that bitstream to be converted into other formats such as analogue voltage in/out, RS485, parallel digital in/out. The reverse process takes place for return data. As explained in 5 WO99/35780, line 8 can also transmit power and this is extracted as indicated at 14.

Arrangement of converter 4 externally of the devices 2,3 in accordance with the invention effectively permits retro-fitting of a reflective signalling system in place 10 of a conventional system. This is facilitated by releasable signal connectors 11 as shown schematically between the converter 4 and second device 3 and which may also be arranged between line 8 and first device 2. Indeed, the compact nature of reflective signalling 15 technology is such that the entire converter 4 may be integrated into the housing of the connector as indicated diagrammatically by means of dashed lines 15.

CLAIMS

1. Communication system comprising: first and second pieces of equipment having respective housings; a data
5 transmission line for transmitting data between said pieces of equipment in a reflective signalling format; and conversion means connectable to said data transmission line externally of said respective housings for converting data between a reflective signalling format and another
10 format suitable for processing by one of said pieces of equipment.
2. Communication system according to claim 1, wherein said conversion means includes a signal connector for connection to one of said pieces of equipment.
- 15 3. Communication system according to claim 1 and including a connector assembly including said conversion means and a signal connector for connection to one of said pieces of electrical equipment.
4. Communication system according to claim 3, wherein
20 said connector assembly includes a housing, the converter being located inside that housing.
5. Communication system according to any one of claims 2 to 4, wherein said signal connector is releasable.
6. Communication system according to any preceding
25 claim, wherein said conversion means also converts power between a reflective signalling format and another format suitable for consumption by one of said pieces of equipment.

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7. Converter for converting data between a reflective signalling format and another format, said data being transferred between first and second pieces of equipment; wherein the converter is adapted to be located externally of said first and second pieces of equipment.
8. Converter according to claim 7 and including a signal connector for connection to one of said pieces of electrical equipment.
9. Converter according to claim 8, wherein said signal converter and said signal connector are located in a common housing.
10. Converter according to claim 8 or 9, wherein said signal connector is releasable.
11. Converter according to any one of claims 7 to 10 and also adapted to convert power between a reflective signalling format and another format suitable for consumption by one of said pieces of equipment.

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